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GEOLOGIC AND MINERAL AND WATER RESOURCES INVESTIGATIONS IN WESTERN COLORADO, USING SKYLAB EREP DATA

Monthly Progress Report
August 1973

EREP Investigation 380
Contract NAS-13394

Dr. Keenan Lee
Geology Department
Colorado School of Mines
Golden, Colorado 80401

Submitted to:

Mr. Martin Miller, Technical Monitor
Principal Investigations Management Office
Code TF6
Johnson Space Center
Houston, Texas 77058

18 September 1973

INTRODUCTION

The primary objective of the CSM Skylab Program is to analyze EREP data for geologic information. To this end, the research has been subdivided into the following tasks;

Task I. The PI shall assist NASA/MSC in mission planning activities related to the proposed investigation.

Task II. The investigator will screen all EREP data obtained over Colorado and will select frames for detailed study.

Task III. The investigator will prepare photogeologic maps using selected S-190 photographs, and will analyze them to determine what geologic information may be contained in them.

Task IV. The geological interpretations obtained in Task 3 will be compared to interpretations obtained from S-192 imagery, and to interpretations made from ERTS-I imagery.

Task V. The geological interpretations will be verified by means of interpretation of aerial photographs, published geological reports, and field observations.

Task VI. The investigator will prepare recommendations for the optimum type, scale, and resolution of imagery to be used for studies of regional geology and exploration for mineral deposits and water resources.

PROGRESS

Overall Status

With this report, Milestones 1-4 have been achieved, and the project is on schedule.

Past Month's Activities

Some interpretation of ERTS imagery continued in those areas where EREP data are expected. Photo interpretation maps were prepared, prior to some anticipated field work in September.

Work continued on compilation of the final Regional Geologic Test Site map and report. This project is about 80% complete.

Work on the simulated low sun-angle photo mosaic of the bulk of Site 392 also continued. Final photographs have been taken, and are in the process of being printed for subsequent compilation into the mosaic.

Screening of EREP data got started in August with the receipt of the following S190 photos:

S190A	T34	contact B/W pos trans only
	T48	contact B/W pos trans only
S190B	T34	contact pos trans only

These photos have been indexed, and quality evaluation was started. The photo location co-ordinates, as given by computer output, are in some cases wrong. The quality of the 190A B/W dupe positives ranges from poor to very good, with the two IR bands (Type 2424 film) being judged poor due largely to graininess, with some degradation being caused by snow cover. The 190B dupe positives were judged very good overall; although the transparencies must be cut into individual frames for stereo viewing because the frames were printed on the dupe film backwards. Other than for screening purposes, these photos have not been interpreted, as

the bulk of this work must be done on enlargements.

Preliminary field investigations were conducted by the PI in the San Juan Mountains, near the junction of Tracks 34 and 30. This area will be used as one of the major subsites of the project, both for general geologic phenomena and for mineral deposit studies, in areas where economic deposits occur above timberline.

Planned Activities for Current Month

Skylab 2 data will be screened as received, and, hopefully, enlargements will be received for photogeologic interpretation.

Studies currently under way will continue toward completion.

Travel

Eight man-days were spent in the field (San Juan Mtns.) in August.

Approximately five man-days are scheduled in the field in September, in the Southern Front Range area.

Outlook and Recommendations

Milestone 5 - update of requirements for SL4 based on SL2 and SL3 accomplishments - may not be achieved as scheduled (30 September), due to the difficulty of determining exactly what SL3 data were obtained. It is recommended that this specific information be made readily available to PIs.

Milestone 6 - indexing and quality evaluation of SL2 data - may not be achieved as scheduled unless the outstanding SL2 data are received shortly. As of this date (18 September) the following data requirements are outstanding:

S190A	T34 and T48	color dupe positives
		color IR dupe positives
		B/W neg trans
		4X pos trans.
		4X pos prints

S190B	T48	color dupe positives
	T34 and T48	2X pos trans 2X pos prints
S192	T34 and T48	all data.

Also because of the lack of the above data, photogeologic interpretation work is being delayed.

Keenan Lee
Principal Investigator